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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/734,275	12/15/2003	Kie Y. Ahn	M4065.0383/P383-B	1475

24998 7590 06/21/2005

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EXAMINER	
ANDUJAR, LEONARDO	

ART UNIT	PAPER NUMBER
2826	

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/734,275	AHN ET AL.	
	Examiner	Art Unit	
	Leonardo Andújar	2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04/01/2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *92-110* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *92-99,101,102 and 107-110* is/are allowed.

6)☒ Claim(s) *100 and 103-106* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Acknowledgment

1. The amendment filed on 04/01/2005 has been entered. The present Office action is made with all the suggested amendments being fully considered. Accordingly, pending in this Office action are claims 92-110.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 100 and 103-106 are rejected under 35 U.S.C. 103(a) as being unpatentable over anticipated by Yuan (US 6,407,441) in view of Dalman (US 4,575,700) further in view of Tran (US 6,259,407) further in view of Latavic et al. (US 5, 986,331)

4. Regarding claim 100, Yuan discloses a processor system comprising a processor and an integrated circuit including a coplanar waveguide (col. 5/lls. 7-12 & col. 8/lls. 23-30). Yuan does not disclose that the integrated circuit includes a signal conductor line comprising a copper layer wherein the conductor line layer is over a first insulating layer on the substrate wherein the first insulating layer is at least partially between the conductor line and a top surface of the substrate, and an oxide layer over the conductor line layer; at least two longitudinal ground conductor planes formed over

the substrate and on both sides of the signal conductor line and spaced apart form the signal conductor line to form respective gaps and at least two trenches in the substrate at the respective gaps. Dalman (e.g. figs. 1-3 & col. 1/lls. 9-30) shows an integrated circuit including a coplanar waveguide comprising: a substrate 12; a signal conductor line 26b over the substrate, wherein the signal conductor line is over a first insulating layer 28 on the substrate; and wherein the first insulating layer is at least partially between the conductor line and a top surface of the substrate (i.e. region 20' in fig. 2), and an insulating layer 28 over the signal conductor line (top section of 28); at least two longitudinal ground conductor planes 26a/c formed over the substrate and on both sides of the signal conductor line and spaced apart from the signal conductor line to form respectively gaps, and at least two trenches 14/16 in the substrate at the respective gaps. According to Dalman this type of coplanar waveguide can be easily incorporated as a solid state circuit element, can be easily fabricated and has particularly desirable transmission line characteristics such as low Z impedance lines (col. 1/lls. 23-29 & col. 3/lls. 1-7)

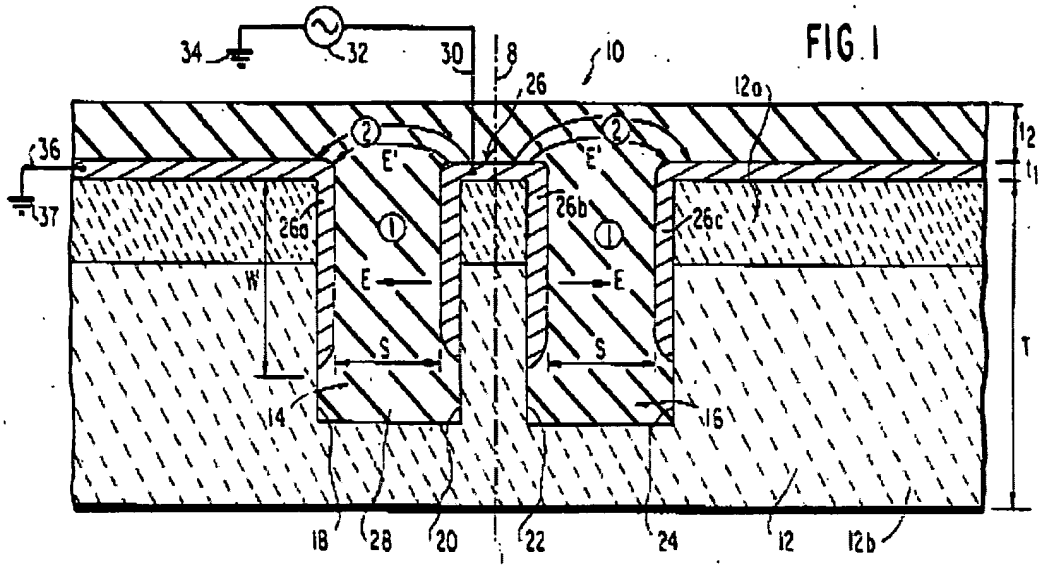

FIG. 1

Dalman teaches that the conductor layer 26 can be made of aluminum, silver or gold (col. 4/lls. 42-53). However, Dalman does not teach that the conductor line can be made of copper or that the insulating layer 28 formed over the signal conductor can be made of an oxide. Tran teaches that copper is a suitable material for signal lines (col. 8/lls. 16-18) whereas Letavic teaches silicon oxide is a suitable material to isolate the coplanar waveguide conductor layer (see abstract and claim 1).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the coplanar waveguide present in integrated circuit disclosed by Yuan having a signal conductor line layer over a first insulating layer on the substrate wherein the first insulating layer is at least partially between the conductor line and a top surface of the substrate, and an insulating layer over the conductor line layer; at least two longitudinal ground conductor planes formed over the substrate and on both sides of the signal conductor line and spaced apart form the signal conductor line to form respective gaps and at least two trenches in the substrate at the respective gaps in

accordance to Dalman's invention since this type of coplanar waveguide can be easily incorporated as a solid state circuit element, can be easily fabricated and has particularly desirable transmission line characteristics such as low Z impedance as taught by Dalman an to use copper to make the signal conductor layer disclosed by Yuan in view of Dalman as taught by Tran since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice (see In re Lashing, 125 USPQ 416) and to use silicon oxide as insulating material which is over the signal conductor line disclosed by Yuan n view of Dalman further in view of Tran since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice.

5. Regarding claims 103-106, although Yuan in view of Dalman further in view of Tran further in view of Letavic teaches most aspects of the instant invention the device dimensions are not disclosed (i.e. trench depth, gap width, signal conductor width, ground/signal conductor thickness). Dalman discloses that the device dimensions are design choice variables that are subject to optimization (col. 2/ll. 62-col. 3/ll. 7). Moreover, the dimensions as claimed by applicant, absent any criticality, is only considered to be the "optimum" value of the dimensions disclosed by the Prior Art that a person having ordinary skill in the art would have been able to determine using routine experimentation based, among other things, on the desired accuracy, manufacturing costs, etc. (see In re Boesch, 205 USPQ 215 (CCPA 1980)), and since neither non-obvious nor unexpected results, i.e., results which are different in kind and not in degree

from the results of the prior art, will be obtained as long as the semiconductor device is used as already suggested by the Prior Art

Allowed Claims

6. Claims 92-99, 101, 102 and 107-110 are allowed.

Response to Arguments

7. Applicant's arguments with respect to claim 100 and 103-106 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonardo Andújar whose telephone number is 571-272-

1912. The examiner can normally be reached on Mon through Thu from 9:00 AM to 7:30 PM EST.

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J. Flynn can be reached on 571-272-1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

11. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leonardo Andújar
Patent Examiner
Art Unit 2826
06/08/2005